



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/525,649      | 02/24/2005  | Werner Kuhlmann      | 10808/217           | 8466             |

48581 7590 06/13/2007  
BRINKS HOFER GILSON & LIONE  
INFINEON  
PO BOX 10395  
CHICAGO, IL 60610

|          |
|----------|
| EXAMINER |
|----------|

BOOSALIS, FANI POLYZOS

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2884

|           |               |
|-----------|---------------|
| MAIL DATE | DELIVERY MODE |
|-----------|---------------|

06/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/525,649

Applicant(s)

KUHLMANN, WERNER

Examiner

Faye Boosalis

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 and 13-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-11, 13-16 and 18 is/are rejected.
- 7) ☒ Claim(s) 3 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's arguments, see pages 7-11, filed 23 February 2007, with respect to the rejection(s) of claim(s) 1-3, 5-7 and 16-17 under 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Chapman et al (US 5,581,084 A) and Fuji et al (US 4,982,096).

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The Specification fails to provide antecedent basis for claim terminology, "separation point" can only be found in the claims.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 11 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 11, the claim is unclear and indefinite by not disclosing where exists a separation point to fill with a material. The examiner interprets "separation point" as one of the regions between either the auxiliary layer, the detection region or the insulating region.

Claims 14-15 recites the limitation "the filling material" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Suggested dependency of claims 14 and 15 on claim 11.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al (US 5,581,084 A).

Regarding claims 1, 9-10 and 13, Chapman discloses a sensor arrangement and a method for manufacturing the sensor arrangement, comprising: a sensor (1) arrangement for detecting radiation having a layer sequence which contains, in order indicating: a holding substrate (12) (i.e. transparent substrate made of CdZnTe) which is permeable to the detectable radiation, at least in regions, or produces detectable radiation when radiation impinges thereon and which holds a plurality of detection elements (10a)(10b) in the sensor arrangement (col. 5, lines 15-16), at least one auxiliary layer (14) which is permeable to the detectable radiation and extends continuously or a set of the plurality of detection element (10a)(10b) or which contains separate regions which are respectively associated with a detection element (10a)(10b) (See Fig. 5), a detection layer with separate detection regions which are contained in a detection element and respectively contain at least one semiconductor component

Art Unit: 2884

which is sensitive to the detectable radiation, and an insulating layer (20) with separate insulating regions for electrically insulating the detection regions (10a) (10b) from a point of contact having electrically conductive connections (24)(28) (Fig. 5 and col. 5, lines 46-52) and connection surfaces (26) being electrically connected to connection sites that lead to semiconductor components (See Fig. 5, Abstract and col. 5, lines 54-65). Although Chapman does not specifically disclose pads, the use of the connection surfaces (26) operate as a conductive contact pad since the connection surfaces (26) are electrically connected to the connection sites that lead to semiconductor components.

Regarding claim 5, Chapman discloses the detection layer contains a semiconductor support material (i.e. Group II-VI semiconductor material) and the point of contact contains solder material (i.e. metal alloy) (col. 2, lines 49-52 and col. 5, lines 56-57). Chapman does not disclose the auxiliary and the insulating layer being a glass material, however it would have been obvious for one having ordinary skill in the art at the time the invention was made to utilize an auxiliary layer made of glass or ceramic and the insulating layer made of glass, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 6, although Chapman does not disclose the detection area dimensions or the number of detection elements, it would have been obvious to one having ordinary skill in the art at the time the invention was made to comprise a detection area being smaller than five square millimeters and the sensor arrangement

Art Unit: 2884

containing more than two hundred detection elements, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 7, Chapman discloses each semiconductor component contains a doped region (p-n photodiode layers) (col. 6, lines 52-61).

Regarding claim 8, although Chapman does not specifically disclose the sensor arrangement as described supra in claim 1, manufactured in a computer tomography system, it would have been obvious to a person having ordinary skill in the art to modify Chapman, to use an imaging system, such as a CT, since Chapman utilized a semiconductor substrate.

7. Claims 2, 4, 11 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman et al (US 5,581,084 A) as applied to claims 1 and 9 above, and further in view of Fuji et al (US 4,982,096).

Regarding claim 2, Chapman et al discloses all of the limitations of the parent claim 1, as described above. However, Chapman et al. are silent with regards to both an absorbing and reflecting regions, of detectable radiation, of the holding substrate. Fuji discloses a multi-element radiation detector comprising a holding substrate (109) containing regions which are permeable to the detectable radiation and are respectively contained in a detection element, the holding substrate (207) contains, between the detection elements (A)(B), regions which absorb (102) or reflect (103) the detectable radiation (101) (See Fig. 4). Thus, it would have been obvious to modify Chapman et al to include regions between detection elements which absorb or reflect the detectable

radiation in order to suppress the cross-talk signals between the various sensors, as taught by Fuji et al.

Regarding claims 4 and 11, Fuji discloses wherein at least one of the regions is separated with a filling material which absorbs or reflects the detectable radiation (i.e. impermeable separator filling groves) (col. 13, lines 23-26).

Regarding claims 14-15, although Chapman nor Fuji specifically disclose of the filling material, it would have been obvious for one having ordinary skill in the art at the time the invention was made to use epoxy resin and mixed with titanium dioxide, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 16, although Chapman nor Fuji specifically disclose the detection layer contains silicon, it would have been obvious for one having ordinary skill in the art at the time the invention was made to use silicon, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

***Allowable Subject Matter***

8. Claims 3 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the prior art does not disclose or fairly suggest wherein the holding substrate contains material which convert impinging particle radiation or radiation high in energy as compared to the detectable radiation into the detectable radiation and a material which converts X-ray radiation into radiation which can be detected with a pin diode.

Regarding claim 17, the prior art does not disclose or fairly suggest separating the computer tomography with the sensor arrangement using x-ray radiation as the emitted radiation.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Boosalis whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2884

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FB

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER